

WHAT IS CLAIMED IS:

1. A semiconductor device comprising:
a semiconductor substrate;
source/drain regions formed on the semiconductor
5 substrate;
a gate insulating film formed between the
source/drain regions on the semiconductor substrate;
and
a gate electrode formed on the gate insulating
10 film,
wherein
a film stress of the gate electrode is 200 MPa or
less in terms of absolute value.
2. The semiconductor device according to claim 1,
15 wherein the gate electrode is in contact with the gate
insulating film.
3. The semiconductor device according to claim 1,
wherein said gate electrode is formed of a polysilicon
film.
- 20 4. The semiconductor device according to claim 1,
wherein the gate electrode comprises at least one of a
metal silicide film and a high-melting point metal film.
5. The semiconductor device according to claim 4,
wherein the high melting point metal film is formed on
25 the metal silicide film
6. A non-volatile semiconductor device
comprising:

a semiconductor substrate;

source/drain regions formed on the semiconductor substrate;

5 a gate insulating film formed between the source/drain regions on the semiconductor substrate; and

a floating gate formed on the gate insulating film, wherein

10 a film stress of the floating gate is 200 MPa or less in terms of absolute value.

7. A method of manufacturing a semiconductor device, comprising the steps of:

forming source/drain regions in a semiconductor substrate;

15 forming a gate insulating film between the source/drain regions of the semiconductor substrate; and forming a gate electrode formed of a polysilicon film on the gate insulating film;

wherein

20 a film stress of the gate electrode is 200 MPa or less in terms of absolute value.

8. The method according to claim 7, wherein the gate electrode comprises a polysilicon film which is formed by depositing the gate insulating film by a CVD method at an atmosphere temperature of 640°C or more.

25 9. The method according to claim 8, wherein the atmosphere temperature is 650°C or more.

10. The method according to claim 8, wherein the step of forming the gate electrode includes a step of forming a polysilicon film while rotating the semiconductor substrate at a high speed.

5 11. The method according to claim 10, wherein the rotation speed is 3000 rpm or more in the step of forming a polysilicon film while rotating the semiconductor substrate.

10 12. The method according to claim 7, wherein the gate electrode is a floating gate.